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Canberra

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002951582 for a patent by OWEN KEITH HUTCHISON as filed on 23 September 2002.

I further certify that the above application is now proceeding in the name of INNOVATIVE MOTORCYCLE TECHNOLOGY PTY. LTD pursuant to the provisions of Section 113 of the Patents Act 1990.

WITNESS my hand this
Eleventh day of August 2003

A handwritten signature in cursive script, appearing to read "J. Billingsley".

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES



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**Australia
Patents Act 1990**

**Provisional Specification
Provision Patent**

Combined Clutch Brake Actuator with Bias

The invention is described in the following statement:

**IP AUSTRALIA
RECEIVED**

23 SEP 2002

CANBERRA

Combined Clutch Brake Actuator with Bias

Description

This invention is intended to improve the controllability of motorised vehicles fitted with a hand operated clutch and a foot operated rear brake. It came about as a result of difficulties I had in operating the rear brake pedal of a motorcycle whilst negotiating difficult terrain. As your hands are always on the handlebars the underlying principle is that as many controls as possible should be hand operated.

The following invention is based on that principle, by bringing rear brake controls that are normally foot operated into a hand control and combining it with the clutch control in a manner that improves the safety of the vehicle.

A single lever fitted to the left hand side of the handlebar on a motorised vehicle that operates the clutch and then the rear brake when pulled towards the handlebar and has the ability to bias towards the rear brake function by one of the following actions;

1. side shift of the lever, i.e to the left or to the right
2. downward movement of the lever

To assist in the understanding of the invention, reference will now be made to the accompanying drawings. Please note that figure (1) shows the invention in a partial cross section form viewing overhead whilst on the vehicle.

Figure (2) shows a partial cross section viewing from above from a position in front of the vehicle.

Figure (1) and (2) shows a setup that if Lever (1) is pulled in towards the handlebar, operates first the clutch and then the rear brake at a point determined by adjuster (6). However by shifting the lever to the right, this, via an adjustable activating rod (3), rotates the brake adjuster cam (12) which increases the leverage as well as taking up the slack to the brake function.

Other components shown in this system are as follows;

1. Finger operated lever
2. Main lever
3. Brake pin angle adjustor
4. Fluid reservoir
5. Brake hydraulic cylinder
6. Brake slack adjustor
7. Brake pin angle stops
8. Pivot for finger lever
9. Main pivot
10. Back stop adjustor
11. Clutch slack adjustor
12. Brake adjustor cam

Figure (3) shows a similar arrangement as in figure (1), the difference being that the Brake Pin Angle Adjustor (3) now activates the Brake Adjustor Cam in the opposite direction, thus shifting lever (1) to the right, now reduces the rear brake bias.

Figures (4) and (5) show a similar arrangement to Figures (1) and (2) the difference being that the bias is now achieved by downward motion of Lever (1) and as in figures (1) and (2) the bias function can be reversed by the same changes shown in figure (3).

It will be realised that the combined clutch and brake lever according to this invention is not restricted to the use of hydraulic cylinders as shown in the example, but may use other suitable form of operating the clutch and brake. For example pneumatic, electric or any other means by which the brake and clutch can be effectively activated. It will be further realised the leverage ratios and hydraulic cylinder sizes shown are for example only and an individual vehicle may require re-positioning of pivot points, changing of leverage ratios or cylinder sizes or the use of power assistance to increase efficiency.

I believe that this invention offers the following advantages over vehicles fitted with hand operated clutch and foot operated brakes.

1. Allows operator to utilise the rear brake whilst the operator's weight is placed at the extremes of it's mobility thus enhancing the controllability of the vehicle
2. Allows use of the vehicle by certain groups of disabled people.
3. Simplifies the controls of the vehicle by virtue of the concept that a single lever is able to control the rotational speed of the rear wheel (within the constraints of gear selection and throttle setting)
4. Can be adjusted to help prevent stalling whilst using the rear brake of the vehicle
5. Can be adjusted to help prevent rearward motion of the vehicle
6. Allows the operators foot that would normally activate the rear brake to perform other functions i.e for dynamic or static stability, assistance for forward motion or for balance
7. Allows the rear brake of a vehicle to be used without weight being transferred to the side of the vehicle that the rear brake pedal was on. This reduces the side loading on the front tyre whilst using the rear brake
8. Allows the redesign of the foot pegs to allow the rider to better shift his/her weight for and aft
9. By adjusting the overlap between the clutch and brake functions better control may be achieved over the retardation of the rotational speed of the rear wheel.



Owen Hutchison

23rd September 2002

Abstract

A single lever fitted to the left hand side of the handlebar on a motorised vehicle that operates the clutch and then the rear brake when pulled towards the handlebar and has the ability to bias toward the rear brake function by one of the following actions:

1. side shift of the lever, i.e to the left or to the right
2. downward movement of the lever

FIGURE 1

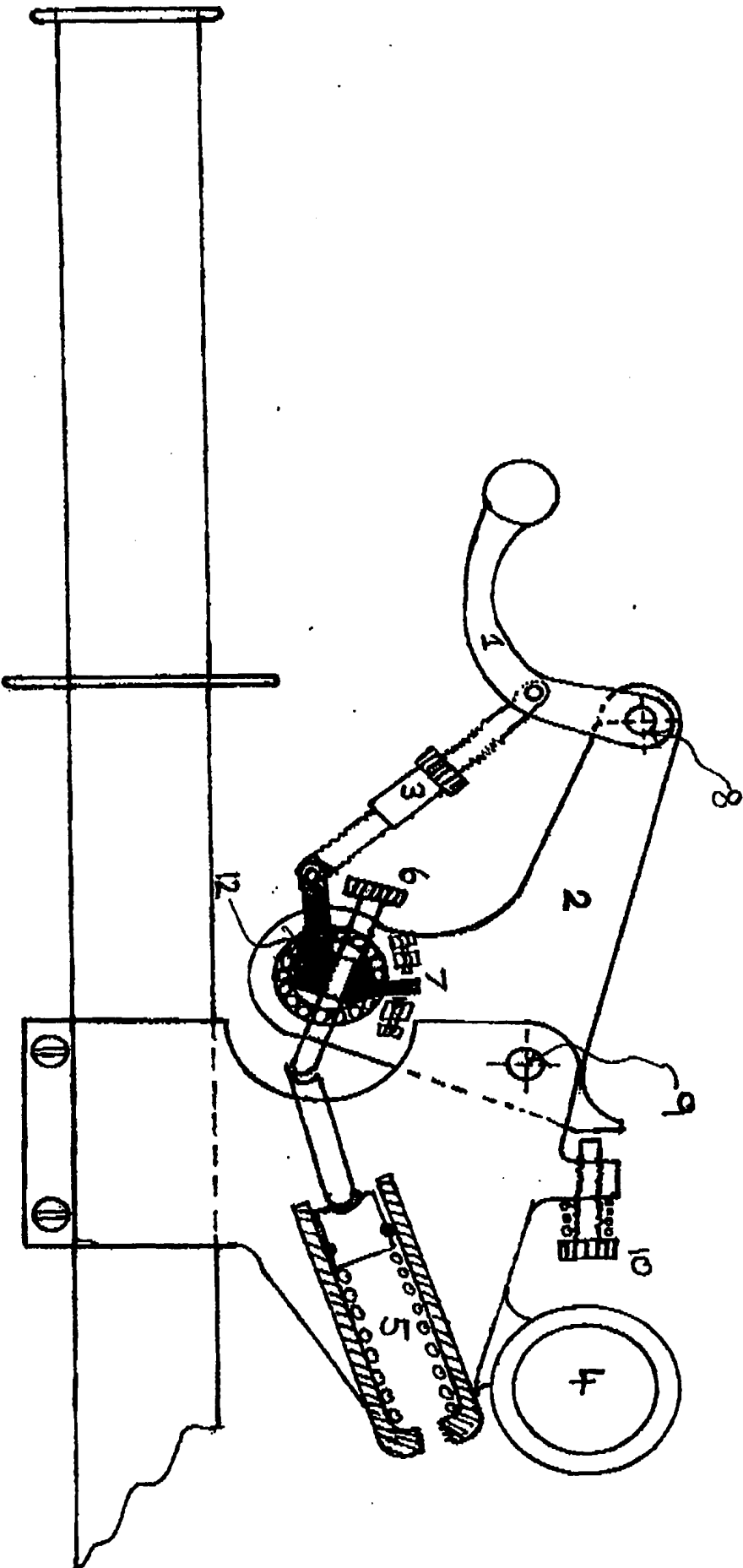


FIGURE 2

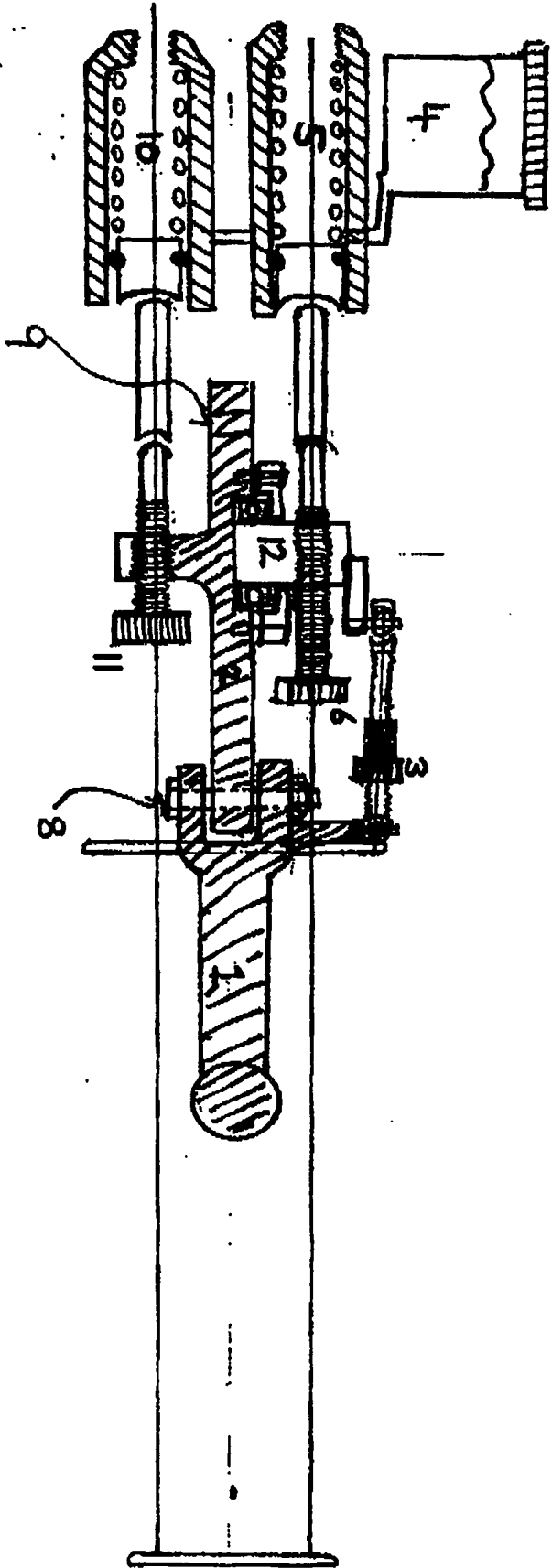


Figure 3

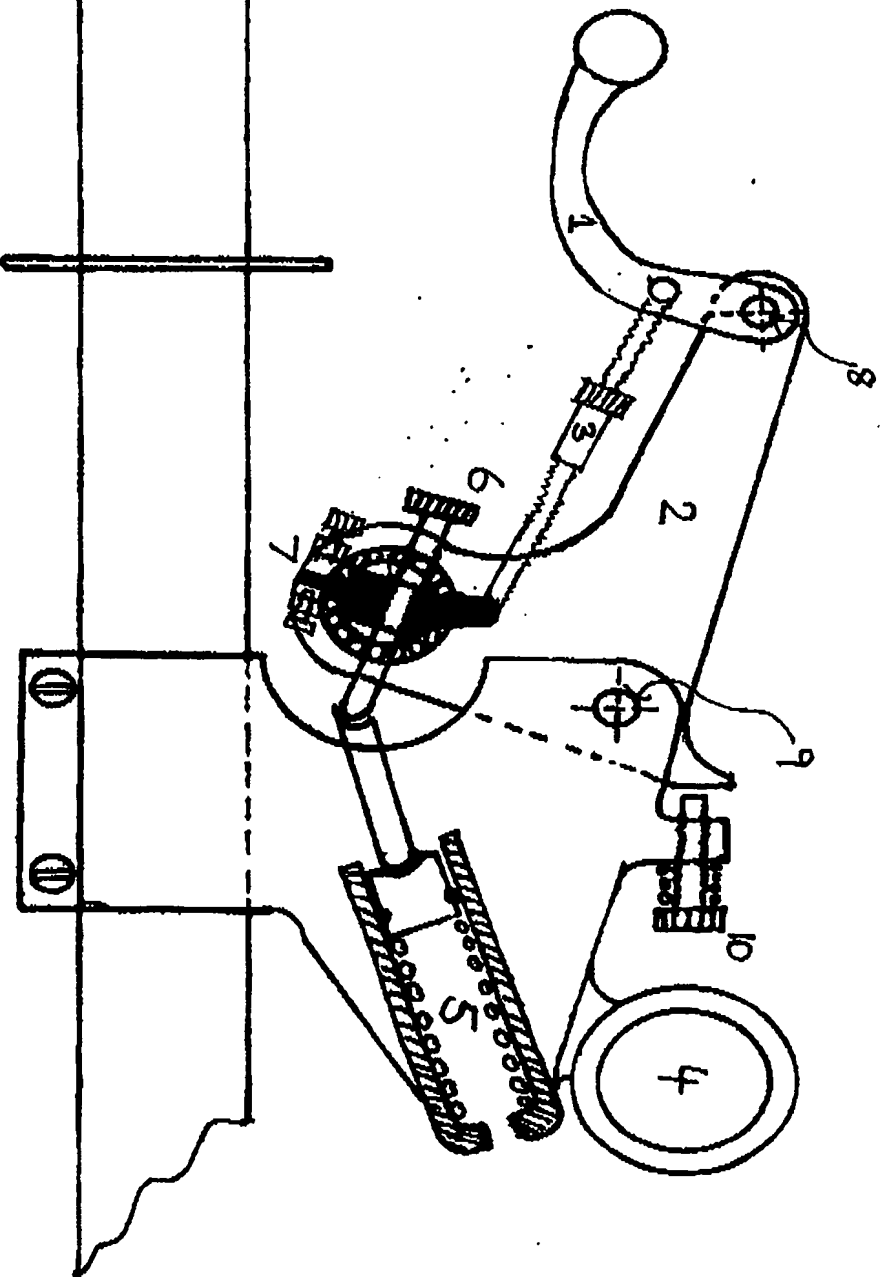


FIGURE 4

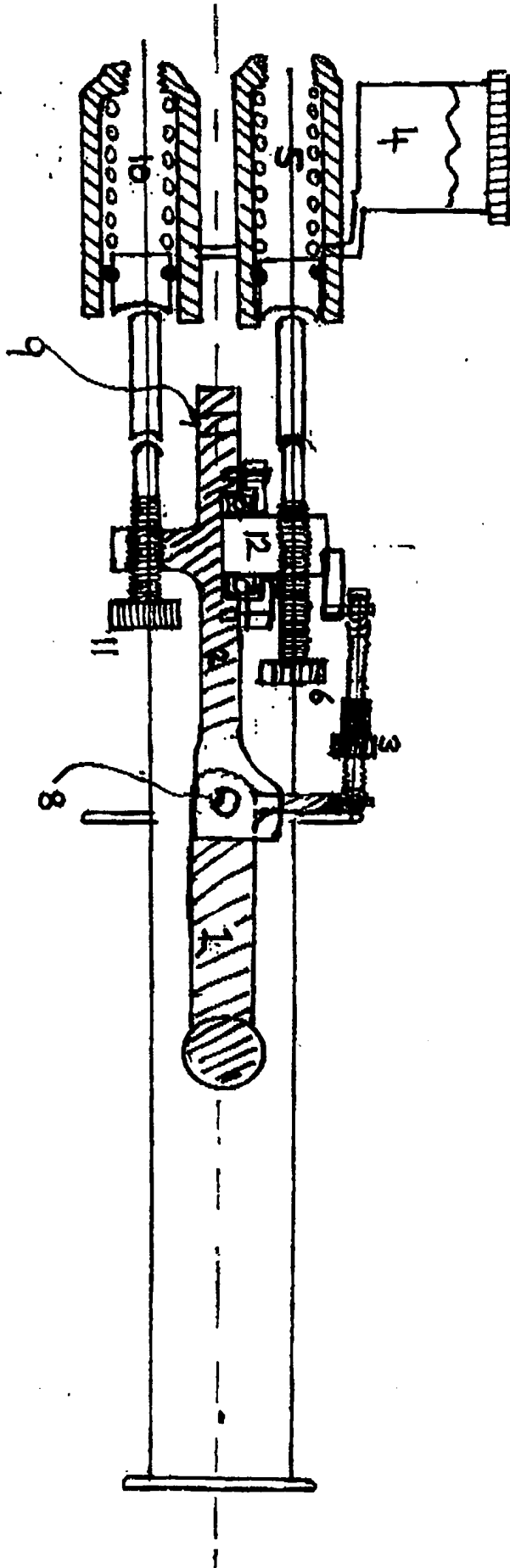
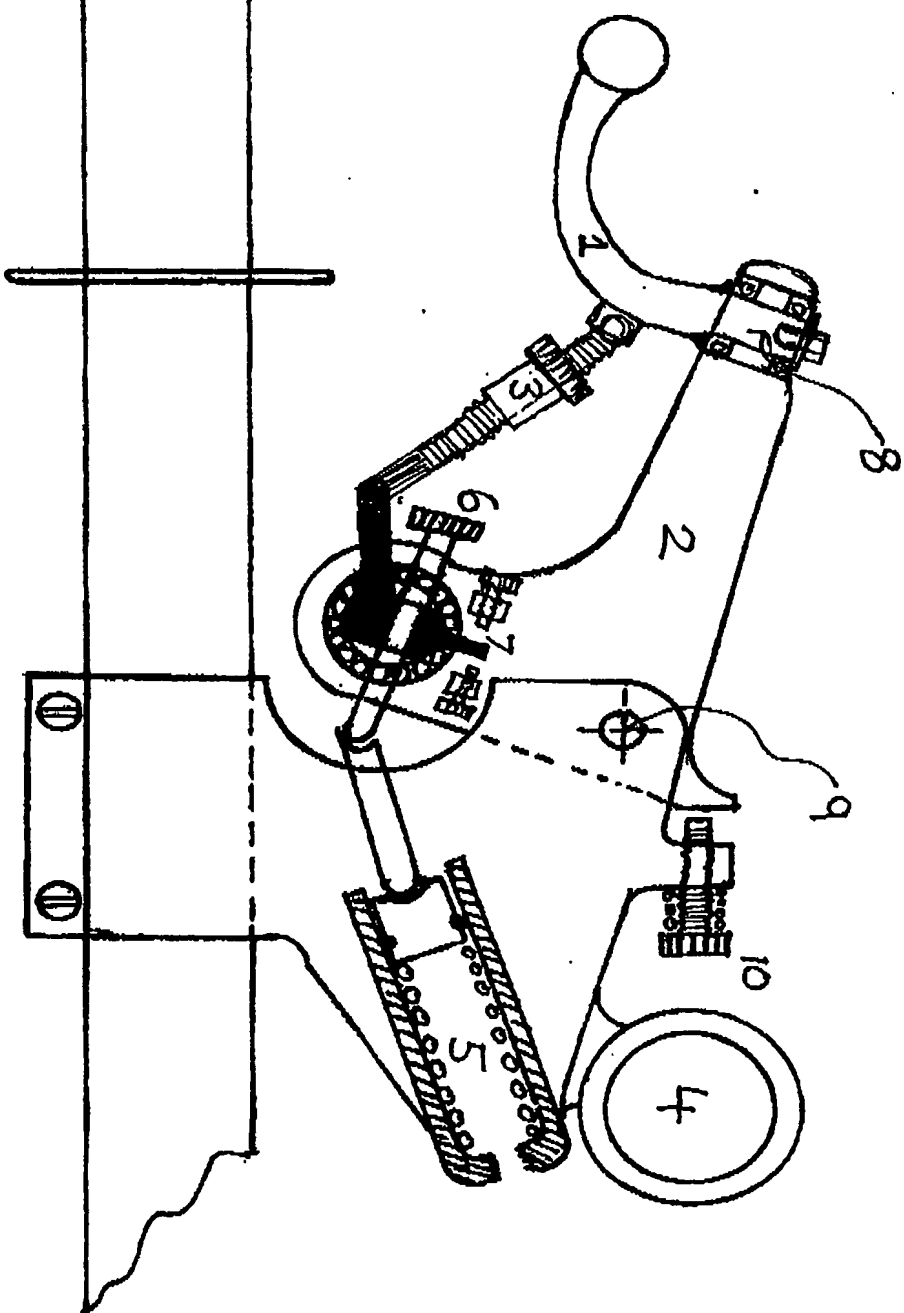


FIGURE 5



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